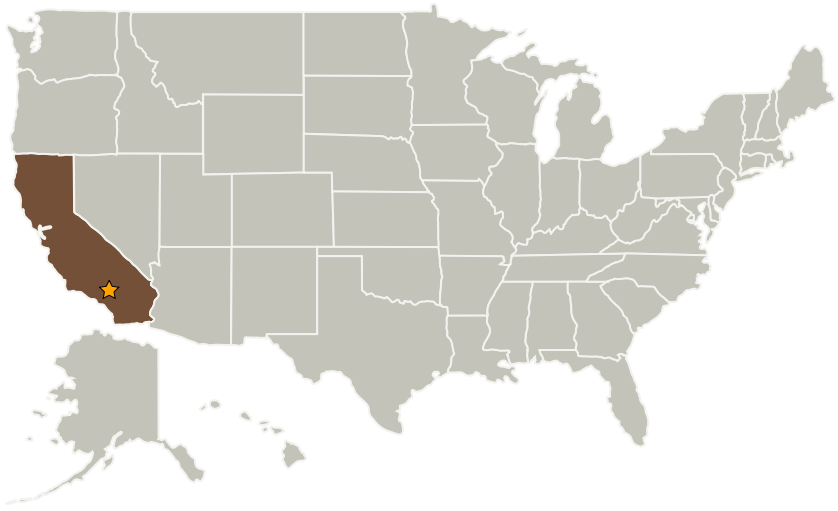
Use Of Dynamic Distortion To Predict And Alleviate Loss Of Control, Phase II

Completed Technology Project (2004 - 2006)

Project Introduction

The intent of this project is to develop and validate means to alert, constrain and thereby alleviate loss of control (LOC) associated with unfavorable pilot-vehicle systems (PVS) interactions present in high gain, closed-loop PVS operations. While the effective aircraft dynamic properties involved in these events have been extensively studied and understood, similar scrutiny has not been paid to the many aspects of the primary manual control system that converts the pilot control inputs to motions of the control surfaces. It has often been tacitly assumed that the adoption of fly-by-wire (FBW) systems has eliminated the primary manual control link as an important player in LOC situations. Consequently, the impact of static and dynamic control system effects that distort "ideal" pilot to surface relationships, the near absence of manipulator tactile cues for some FBW systems, as well as the total elimination in FBW systems of some favorable cues present in traditional hydro-mechanical systems have not received detailed attention. The purpose of the Smart-Cue developments proposed herein are to redress this neglect, to develop and, ultimately, to validate remedial manual control systems.

Primary U.S. Work Locations and Key Partners



Use Of Dynamic Distortion To Predict And Alleviate Loss Of Control, Phase II

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Armstrong Flight Research Center (AFRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Armstrong Flight Research Center(AFRC)	Lead Organization	NASA Center	Edwards, California
Systems Technology, Inc	Supporting Organization	Industry	

Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.2 Thermal Control Components and Systems
    - TX14.2.3 Heat Rejection and Storage